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REVIEW OF THE WORK PROGRAMME OF THE COMMITTEE, IMPLEMENTATION OF DECISIONS RELATING THERETO AND PROPOSALS FOR FURTHER WORK

Report by the UNCTAD secretariat

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INTRODUCTION AND SUMMARY

1. The Trade and Development Board, in paragraph 16 of its resolution 231 (XXII) of 20 March 1980 on rationalization of the permanent machinery of UNCTAD, requested "the main Committees to review regularly the elaboration of their work programme and the implementation of their decisions". Moreover, in accordance with paragraphs 6 and 7 of the report of the Ad hoc Intergovernmental Structure and Functions in the Economic and Social Fields (TD/B/1154), endorsed by the Trade and Development Board in its resolution 352 (XXXIV) of 20 November 1987, each of the main Committees is required at each regular session, without prejudice to its mandate, to (a) review the elaboration of its work programme and the implementation of its decisions; (b) consider and decide on the work ahead, including tasks to be introduced or prolonged in the work programme; and (c) ensure that any specific tasks be clearly defined with a timetable for their accomplishment.

2. Chapter I of the present report briefly reviews the functions and work programme of the Committee since its establishment and recalls the main themes on technology issues considered by the Committee, the Trade and Development Board and the Conference. Chapter II focuses on intergovernmental activities and supporting action by the secretariat since the last session of the Committee. Chapter III describes the consultations and co-operation of UNCTAD with other United Nations bodies. Finally, chapter IV provides some elements for the consideration of future work.

Chapter I

FUNCTIONS AND WORK PROGRAMME OF THE COMMITTEE ON TRANSFER OF TECHNOLOGY

3. Since its inception in 1974, the Committee on Transfer of Technology has played a key role in bringing to the forefront of international discussions a number of technology-related policy issues of particular importance to international trade and development. Work on these issues in UNCTAD, whether at the level of the Conference, the Trade and Development Board or the Committee, has gone through different though interrelated phases, each with a particular focus reflecting the relative priority attached to these issues by the international community at different points in time.

4. During the earlier period of its establishment, the Committee focused on issues related to transfer of technology, including the terms and conditions for such transfer. This was followed in the second half of the 1970s by a systematic exploration of ways and means of improving the absorption, utilization and development of technology which led, in the early 1980s, to the identification of specific measures for strengthening the technological capacity of developing countries and subsequently to work on the formulation and implementation of a strategy for the technological transformation of those countries.

5. In the second half of the 1980s, the Committee gave particular attention to the trade and development issues arising from technological change, including advances in new technology. It reaffirmed the need to encourage international transfer of technology and strengthen the technological capacity of developing countries through national efforts and international co-operation. The role of technology in development and international trade competitiveness has gained in importance in the deliberations of the Committee, particularly at its sixth and seventh session held respectively in 1986 and 1989.

6. At its seventh session (23 January-2 February 1989), the Committee examined trends in the international technology flows, including their developmental implications, and considered measures to stimulate technology flows particularly to developing countries. The Committee also reviewed and discussed new trends in policies and laws relating to the development, protection and transfer of technology in both developed and developing countries and outlined the direction for future work in UNCTAD in the technology field.

7. It is relevant to recall here some other events related to the work of the Committee that have taken place within and outside UNCTAD since the last session of the Committee. Pursuant to General Assembly resolution 44/216 of 22 December 1989, and in an effort to identify solutions to the outstanding issues in the draft international code of conduct on the transfer of technology and reach a conclusion acceptable to all parties to the negotiations, the Secretary-General of UNCTAD suggested in the early part of 1989 that, in continuing these intergovernmental consultations, consideration should be given to the relevance to the code negotiations of the rapidly changing patterns of trade, production and innovation in the area of technology and the policy and legislative responses adopted by Governments to these changes. For this purpose, the UNCTAD secretariat prepared a study which has been circulated to Governments for consideration.

8. This study was also considered by a number of experts invited by the Secretary-General of UNCTAD to provide advice in their personal capacity on the nature and consequences of recent changes in the area of technology and their relevance to the code negotiations, and to suggest appropriate solutions to the issues outstanding, as well as any other possible ways of advancing the negotiations. The experts met in Geneva from 3 to 6 September 1990 and delivered a report to the Secretary-General of UNCTAD at the end of their meeting. The experts reaffirmed the continued relevance and utility of an international code of conduct on the transfer of technology. They were of the view that, in order to achieve conclusive results on the code negotiations, it was necessary to adapt the draft code of conduct to the important changes and developments which have occurred in recent years in the area of technology. To this end, they have suggested some specific ideas and approaches which could be considered by Governments in any future action on the code negotiations. Concrete recommendations were also made in respect of the unresolved issues in the draft code of conduct.

9. The Secretary-General of UNCTAD also held further consultations in October 1990 regarding future action on the draft code of conduct. The results of these consultations as well as the recommendations of the Secretary-General have been transmitted to the United Nations General Assembly for appropriate action (see document TD/CODE TOT/56 and addendum 1).

10. At the second part of its thirty-sixth session (12-23 March 1990) the Trade and Development Board considered a report by the secretariat submitted under item 4 (a) of its agenda on the impact of technological change on patterns of international trade. Discussions on the subject and other matters led to the adoption by the Board of resolution 380 (XXXVI), paragraph 4 of which, "urges Governments to take measures to assist technologically weak countries, especially developing countries, to fully participate in technology-led growth in international trade ... and affirms the need for pursuing policies in the area of technology which further the goal of trade expansion for the benefit of all trading partners, particularly developing countries, and which promote investment, innovation, absorption and utilization of technology and development of technological and entrepreneurial capabilities".

11. Some of these and other related issues were taken up at the Second United Nations Conference on the Least Developed Countries (LDCs), held in Paris from 3 to 14 September 1990, which adopted a Declaration and a Programme of Action for the LDCs for the 1990s. Detailed policy provisions have been outlined in a number of critical areas, including those of science and technology. The Programme of Action stresses the importance of strengthening the scientific and technological base of those countries and increasing the transfer of technology to them, with a view to accelerating their technological transformation. It highlights the need for efforts to improve the access of the least developed countries to foreign technologies and support for programmes of technical assistance, including through more scholarships for studies and training in science and technology. It also emphasizes assistance to those countries in the formulation of appropriate laws, regulations and policies relating to the import of technology and promotion of the development of indigenous technologies. 1/

12. In UNCTAD and other forums, the international community has given increased attention in the policy debate to "sustainable development" as an alternative approach to the management of the world's economic resources. 2/ Such an approach, which takes into account the environmental dimension of development, including specific ecological concerns expressed by individual countries and groups of countries with what it implies for the responsibility of the present generation vis-à-vis future generations, has highlighted the key role that technology plays in economic growth and development. 3/ It has also added new elements in the consideration of technology policy issues, particularly as regards the need to identify "modalities for favourable access to, and transfer of, environmentally sound technologies, in particular to developing countries, including on concessional and preferential terms and for supporting all countries in their efforts to create and develop their endogenous technological capacities ... and in this context, to explore the concept of assured access for developing countries to environmentally sound technologies in its relation to proprietary rights with a view to developing effective responses to the needs of developing countries in this area". 4/

13. In its Final Act, UNCTAD VII requested the Secretary-General of UNCTAD to provide advice and assistance to developing countries to enable them to participate more effectively in the Uruguay Round of multilateral trade negotiations. As part of its efforts towards this end, the secretariat has provided technical support in the area of trade-related intellectual property rights (TRIPs) and contributed to the technical assistance activities carried out in the area of services.

Chapter II

INTERGOVERNMENTAL DECISIONS AND THEIR IMPLEMENTATION

14. The consideration of technology issues in UNCTAD has been accompanied by corresponding activities on the part of the secretariat. The present chapter provides a review of the main intergovernmental activities and supporting actions by the secretariat in the transfer and development of technology since the seventh session of the Committee. These activities and actions are presented under three headings, namely: (i) formulation and implementation of technology policies; (ii) legal policies; and, (iii) Advisory Service on Transfer of Technology.

A. Formulation and implementation of technology policies

15. As described below, work carried out by the secretariat under this heading has covered the following activities: (1) trade and development implications of new and emerging technologies; (2) special aspects of the transfer, application and development of technology; (3) reverse transfer of technology; and (4) economic determinants of technological innovation.

1. Trade and development implications of new and emerging technologies

(a) Technological change and international trade

16. It is generally accepted that technological change is one of the important factors explaining the recent evolution of international trade and the increasing divergence in export performance between countries. In order to contribute to a better understanding of these issues, the secretariat, in accordance with paragraph 105 (24) of the Final Act of UNCTAD VII, prepared a document entitled "Impact of technological change on patterns of international trade", which was submitted to the second part of the thirty-sixth session of the Trade and Development Board, as mentioned in paragraph 10 above. 5/

(b) Biotechnology

17. Pursuant to Committee resolution 32 (VII), paragraph 3, the secretariat examined the trade and development opportunities and implications of the diffusion of biotechnology for developing countries' agricultural exports. The main findings and policy conclusions of this work are contained in a document (TD/B/C.6/154), submitted to the present session of the Committee, under item 4 of its provisional agenda, entitled "Trade and development opportunities and implications of new and emerging technologies: the case of biotechnology".

(c) Electronics technology

18. The secretariat has, over the reporting period, prepared a document on "The diffusion of electronics technologies in the capital goods sector in some developing countries". 6/ This report is based on the findings of studies carried out on the diffusion of these technologies in individual countries together with some additional information from secondary sources. 7/

2. Special aspects of the transfer, application and development of technology

19. Pursuant to Committee resolution 32 (VII), paragraphs 2 and 4, the secretariat has carried out work on selected aspects of the transfer, application and development of technology. It has examined the challenges and opportunities for technology transfer and development in the 1990s and reviewed the applicability to developing countries of some widely used technology indicators.

(a) Transfer and development of technology in a changing world environment: the challenges of the 1990s

20. A report containing the main findings and conclusions of the research carried out by the secretariat on the subject is submitted to the Committee under item 3 of its provisional agenda as document TD/B/C.6/153. It examines the factors affecting the transfer of technology in the latter part of the 1980s and prospects for the present decade and considers the policy implications of these trends and of the contrasting experiences of developing countries more generally in acquiring technological dynamism.

(b) Technology indicators and developing countries

21. Pursuant to resolution 32 (VII) of the Committee, particularly paragraph 4, the secretariat reviewed technology indicators in wide use by other international organizations for the purpose of examining their applicability to developing countries, particularly for assessing technology flows, development of technological capabilities and the role of technology in trade performance. The findings of this review, including methodology, coverage and quality of data, are contained in the document entitled, "Technology indicators and developing countries", available to the current session of the Committee as a background paper (UNCTAD/ITP/TEC/19).

3. Reverse transfer of technology

22. In its resolution 43/184, dated 20 December 1988, the United Nations General Assembly requested "the Secretary-General of the United Nations Conference on Trade and Development to make the necessary arrangements so that future work on the reverse transfer of technology can be considered by the Committee on Transfer of Technology in the context of the elaboration of its work programme, taking into account the conclusions and recommendations of the Fourth Meeting of Governmental Experts on the Reverse Transfer of Technology (Geneva, 14-18 March 1988) and of the work accomplished by previous meetings of governmental experts on the subject". In its resolution 32 (VII), paragraph 11, the Committee on Transfer of Technology invited the Secretary-General of UNCTAD to act accordingly. Pursuant to these two resolutions, it is proposed that the Committee at its present session take up this question in the context of the elaboration of its work programme. The elements below may be useful in this regard.

23. There is no need to over-emphasize that reverse transfer of technology is a complex and multi-faceted phenomenon which is affected by changing economic, social and political factors. It is a subject that cuts across the work of different organizations of the United Nations system (such as UNCTAD, UNIDO, UNESCO, UNDP, UNCTC, ILO, WHO, FAO) and other intergovernmental organizations

(such as the International Organization for Migration, previously known as the Intergovernmental Committee for Migration), which covered specific aspects from different angles and in their respective fields of competence.

24. Through their research, policy analysis and technical co-operation activities in such critical areas as human resources development, including education and training; strengthening the endogenous technological capabilities of developing countries; international co-operation in the exchange of skills; development of mechanisms for facilitating the return of skilled migrants to their home countries; and promotion of industrial development, these organizations have contributed to alleviating the adverse effects of the reverse transfer of technology, elucidating the conceptual and empirical aspects of this phenomenon and developing a process of intergovernmental discussions on policy approaches to deal with it.

25. The development issues arising from this phenomenon could in the future be addressed as part of the complex set of problems and constraints facing developing countries, in strengthening their national technological and innovative capabilities, including their institutional infrastructure and in absorbing and utilizing new technologies. This may have the merit of integrating these issues with other technology-related questions dealt with by the Committee, which would be particularly relevant and timely in today's rapidly changing economic, technological and political environment.

4. Economic determinants of technological innovation

26. As a follow-up to the empirical research carried out on the role of R & D institutes in technological innovation in Indonesia, Senegal and Sri Lanka, the secretariat prepared a report on "Research and development institutes in developing countries and their contribution to technological innovation", submitted as a background paper to the present session. 8/ This report, which was prepared pursuant to Committee resolution 32 (VII), paragraph 4, represents an attempt to derive some general conclusions on the linkages between research and development and production activities as well as policy implications therefrom.

B. Legal policies

27. The activities of the secretariat in this area comprise four main elements, namely: (1) international legal aspects of the transfer of technology; (2) policies, laws and regulations on the transfer and development of technology; (3) economic, commercial and developmental aspects of the industrial property system; and (4) policies and instruments for the promotion and encouragement of technological innovation.

1. International legal aspects of the transfer of technology

28. Pursuant to General Assembly resolution 44/216 of 22 December 1989, the secretariat has serviced the consultations referred to in paragraph 9, and prepared reports and background material both for the consultations in Geneva and for consideration by the General Assembly. 9/ The secretariat also prepared a study on the relevance of recent developments in the area of technology to the negotiations on the international code of conduct on the transfer of technology 10/ and circulated it to all regional groups and member Governments for comment.

2. Laws, regulations and policies on transfer of technology

29. Pursuant to Committee resolution 32 (VII), the UNCTAD secretariat continued its work on laws, regulations and policies conducive to the transfer and development of technology. Two country studies on the effects of implementation of policies and legislation on technology transfer have been completed during the reporting period. The first study analyses the experience of the Republic of Korea 11/ while the second deals with the experience of Brazil. 12/ A synthesis report on the findings of the studies carried out by the secretariat on the effects of national laws and regulations on transfer of technology 13/ will be issued soon.

30. In pursuance of the same resolution, the secretariat has continued preparing the periodic reports on laws and regulations on transfer and development of technology. A new edition of the periodic report has now been completed. As a result of the workshop held in Moscow in November 1988 on "Joint Ventures as a Channel for the Transfer of Technology", the secretariat has prepared a publication on the proceedings. 14/

3. Economic, commercial and developmental aspects of the industrial property system

31. In continuing its work on the economic, commercial and developmental aspects of the industrial property system, as mandated by Committee resolution 32 (VII), the secretariat has published a study and is in the process of finalizing two others focusing on the evolution of legal and policy approaches and legislative practices in this field, as well as on the extension of traditional methods of protection to new areas. 15/

32. Regarding the possibility of convening a meeting of the Group of Governmental Experts on the Economic, Commercial and Developmental Aspects of Industrial Property in the Transfer of Technology to Developing Countries, requested in Committee resolution 32 (VII), paragraph 7, informal consultations with regional groups suggest that a broad agreement does not exist at present on the appropriateness of convening such a meeting, especially while negotiations are under way in the framework of the Uruguay Round on Trade-Related Intellectual Property Rights (TRIPs). The Committee on Transfer of Technology, at its present session, may wish to take action on this matter and determine the appropriate timing for the convening of such a meeting.

4. Policies and instruments for the promotion and encouragement of technological innovation

33. Pursuant to Committee resolution 32 (VII), the UNCTAD secretariat has continued its work on policies and instruments for the promotion and encouragement of technological innovation. Two case-studies have been completed during the reporting period. The first deals with the effectiveness of incentive schemes, in particular those provided by the industrial property system, for the promotion of innovation in selected industries in Sweden. 16/ The second study examines the impact of industrial property protection on technological innovation in Tanzania. 17/

C. Advisory Service on Transfer of Technology

34. Technical co-operation activities in the field of technology are carried out by the secretariat through the Advisory Service, which gears its activities to the requirements of Trade and Development Board resolution 308 (XXX) and Committee on Transfer of Technology resolution 32 (VII). The Advisory Service aims at responding to the specific requests and requirements of developing countries at the national, subregional, regional and interregional levels; its activities however also depend on the availability of extrabudgetary resources. During the reporting period, the Advisory Service continued its activities with a view to strengthening the technological capacities of developing countries, with special emphasis on the least developed countries, giving priority to activities in the field of human resource development, and to assisting and strengthening research and development institutions as a means of promoting technological innovation of a regional and interregional character, as recommended by the Committee in its resolution 32 (VII), paragraph 12. Detailed information on the Advisory Service's activities, prepared in response to the above resolution, is contained in the addendum to this report. Particular efforts were made in the activities of the Service during this period in developing new projects or modalities of projects, in establishing working relations with new counterparts and funding partners, and in the preparations for the Second United Nations Conference on the Least Developed Countries. A summary of the main technical assistance activities carried out by the secretariat is given under the two subheadings below: (1) human resource development; and (2) technology policies; sectoral aspects and institution-building, including technological innovation.

1. Human resource development

35. During the reporting period, and in accordance with the indications provided by the Committee at its seventh session, priority attention was given to programmes for the development of human resources. The programmes completed are summarized below.

36. Two interregional seminars were implemented during the reporting period: one of them organized in co-operation with and financed by the Islamic Development Bank (IDB), held in Kuala Lumpur (December 1988), and the other, financed by UNDP and held in Moscow, USSR, (November 1988). Three regional seminars were held in co-operation with respectively: PRODEC, in Beijing, October/November 1988; the United Nations Regular Programme of Technical Co-operation (UNRPTC), through a USSR contribution to Section 24, the Ministry of the External Economic Relations of the USSR and the USSR Chamber of Commerce and Industry, in Moscow, February 1990; and PRODEC, in Caracas, June 1990.

37. At the national level, the secretariat participated and made substantive contributions to seminars in Kenya and Somalia and a training mission was completed within the framework of project BDI/85/T01 for officials from Burundi.

38. During the reporting period, reports were completed on the interregional and regional training programmes, and the compendium of policy issues on the transfer and development of technology in developing countries was published. 18/

2. Technology policies: sectoral aspects and institution-building, including technological innovation

39. During the period under review, a project development formulation mission by UNDP with participation from the Advisory Service was fielded to Kenya, following previous work in this country. The mission's recommendations are under consideration by the Government. Within the framework of project BDI/85/T01, a joint team of national and international experts and UNCTAD personnel was established, a mission fielded and a report on the food processing sector and the transfer of technology in Burundi was prepared. The report is to be examined at the forthcoming national seminar. A mission was undertaken to the Gambia and a project document completed. It is being considered by the Government and UNDP for funding. Another mission was fielded to Senegal and drew up main lines of a project proposal for co-operation activities in the field of technology. Following a previous mission to Tunisia, a report containing recommendations was completed and forwarded to the Government. The latter is requesting further UNCTAD assistance for the implementation of the report's recommendations. The secretariat participated in an UNCTAD programming mission to Nigeria, and the corresponding elements concerning technology were incorporated into the report of the UNCTAD Preparatory Programming Mission. A preparatory assistance project on strengthening the external sector is now under way. Also in Nigeria, the secretariat participated actively in a workshop on commercialization and evaluation of research and development results. It participated as well in an Expert Consultation on Agricultural Mechanization in Africa, held in London. A project document on transfer and development of technology in the food processing sector of the SADCC countries was submitted to possible donors for funding. Preliminary indications of interest for the financing of training portions of this project have been expressed.

40. During the reporting period, the regional project on transfer and utilization of technology in least developed and island developing countries in Asia (RAS/86/168) was approved; within the framework of the project's implementation, four country missions were carried out and two reports were completed, and preparations for a regional workshop are continuing. A mission was fielded to Iraq and a joint UNCTAD/UNIDO project review mission is being prepared to Nepal. The Indian case-study on utilization and commercialization of United Nations system-funded R & D results was completed. In Latin America, a mission to Guatemala was fielded and a report containing comments and recommendations was completed and transmitted to the Government for consideration. Another mission was fielded to El Salvador; and work is under way on a project proposal. The secretariat prepared an outline of a joint UNCTAD/ICAITI training project on technology, trade and development perspectives in Central America, and modalities for its financing are being considered. It also finalized an interregional project on the role of small and medium-sized enterprises (SMEs) in the transfer and development of technology and initiated work concerning project formulation in the area of consultancy, design and engineering.

41. Pursuant to Committee resolution 32 (VII), paragraph 10, the secretariat has prepared an in-depth assessment of the special technology problems of the least developed countries, which was made available as a background document at the Second United Nations Conference on the Least Developed Countries, Paris (September 1990). 19/

Chapter III

CONSULTATIONS AND CO-OPERATION WITH OTHER UNITED NATIONS BODIES

42. In carrying out its work in the area of transfer and development of technology, the secretariat has continued its consultations and developed further its co-operation with some other organizations, agencies and bodies of the United Nations system. In so doing, it has benefited from the technology-related work undertaken elsewhere in the system and contributed to activities carried out by other United Nations organizations in this field. The main objectives of the consultations and co-operation activities have been to promote a multidisciplinary approach to the examination of technology issues that are becoming more complex and multi-faceted and to avoid duplication of efforts. These activities are discussed below.

A. Co-operation or joint action in specific areas

1. New and emerging technologies

43. In an effort to take advantage of the complementarity between the work of different organizations in this field, the secretariat has co-operated with UNIDO in undertaking the research on the implications of biotechnology for the developing countries' agricultural exports. UNIDO has provided inputs on the technical aspects of the study for which UNCTAD has the main responsibility. In addition, the secretariat has consulted other United Nations bodies, including FAO, the World Bank and UNDP at the design and/or execution stage of the research. The secretariat has also continued to contribute to establishing co-operating and reference points through the United Nations Centre on Science and Technology for Development (UNCSTD) for research in the areas of biotechnology, micro-electronics, information technology and new materials.

2. Technology flows

44. The secretariat has continued to co-operate with UNIDO, UNCTC, WIPO and OECD in the exchange of statistical data on technology-related flows, including foreign direct investment, payments for technology and patent activities. This has proven to be particularly useful in the preparation of the report on transfer and development of technology in a changing world environment: the challenges of the 1990s (TD/B/C.6/153).

3. Specific technical co-operation activities

45. During the reporting period, several United Nations bodies have participated in different technical assistance activities, particularly in workshops and training events organized by UNCTAD. Such was, for example, the case of the workshop of specialists on technology, trade and development issues in Latin America in the 1990s (Caracas, Venezuela, 4-8 June 1990). The Economic Commission for Latin America and the Caribbean (ECLAC), UNIDO and UNCSTD made available resource persons and contributed special papers to the workshop. As part of the efforts of the UNCTAD secretariat to make use of the expertise and facilities available within the United Nations system, a training mission for government officials from Burundi was arranged within the framework of technical assistance project (BDI/85/T01) in co-operation with and including visits to UNIDO, FAO and ITC during June-July 1990.

B. Other inter-agency activities

46. The secretariat has continued to take an active part in the formal co-ordinating mechanisms within the United Nations system on science and technology. It has contributed to the work of the ACC Task Force on Science and Technology for Development, through various inputs it provided at the tenth and eleventh sessions of the Task Force, held respectively in Vienna from 13 to 16 March 1989 and in New York, from 7 to 9 May 1990. It has also participated in a special meeting called for by the Director-General for Development and International Economic Co-operation of the United Nations and held in Paris on 26 March 1990. The purpose of this meeting was to enhance inter-agency co-operation in the multi-faceted and rapidly changing field of science and technology. In addition, the secretariat has contributed to the preparation by the Advisory Committee on Science and Technology for Development of a substantive input on science and technology to the elaboration of the International Development Strategy for the fourth United Nations development decade.

47. As a follow-up to the decision of the ACC Task Force on Science and Technology for Development, at its eighth session, to initiate the country reviews on the impact of the United Nations system activities on the development of endogenous capacity in science and technology, UNCTAD participated in two inter-agency missions organized by the Centre for Science and Technology for Development. The first mission took place in Bangkok, Thailand, from 5 to 11 December 1988. The second mission was fielded in Kathmandu, Nepal, from 5 to 9 December 1989. The focus of both missions was to assess the impact of the United Nations activities through technical assistance projects, in particular, of the core activities of the system in the field of science and technology.

Chapter IV

FUTURE WORK

48. Over the last three years, the world has witnessed major economic and political changes that affected individual countries and groups of countries with far-reaching consequences for international economic relations. The opening up in Eastern Europe which began with the adoption of political and economic reforms in several countries, together with the emergence of integration schemes, in particular the formation of the 1992 single European market, have contributed to the creation of a new environment that could have wide-ranging implications for world growth, trade and development.

49. While the European integration scheme could stimulate growth and offer attractive outlets for developing country exports, there is a danger that it could result in the adoption of protectionist policies against third countries. 20/ Moreover, as countries in Eastern Europe become more integrated into the world economy through closer economic links with countries in Western Europe, their manufactured and semi-manufactured exports are likely to benefit from improved access to the Western European markets which could be at the expense of exports coming from developing countries. 21/ This, however, could take some time to evolve as the transformations in national economic systems in Eastern Europe would require some new instruments and institutions which need to be put in place to implement market-oriented reforms and policies conducive to the growth of enterprises in these countries. 22/

50. The major changes referred to above could have implications for the magnitude and direction of international technology flows, particularly to developing countries. As countries in Eastern Europe are technologically weak and capital deficient, one of their main objectives would be to attract technology inflows and financing from the developed market-economy countries, a situation which could create additional competitive pressures in international technology and financial markets and a possible redirection of some technology and mostly financial flows away from developing countries to countries in Eastern Europe. This could result, in part, from changes in the locational strategies of firms from the industrialized countries in favour of production sites in Eastern Europe.

51. However, these changes could also create new opportunities for international economic and technological co-operation. The opening up in Eastern Europe could stimulate co-operation with developing countries in technology in some traditional sectors like textiles, clothing, metalwork, steel, food processing, etc. It could also help developing countries to diversify further their sources of foreign technology and create an additional market for their exports, although stiff competition is likely to face developing country firms in East European markets.

52. This rapidly evolving economic, technological and political environment has reinforced the interdependence among States and created new dimensions to the consideration of technology and trade-related issues, including those arising from structural change currently under way in developed and developing countries. The two substantive documents before the Committee (TD/B/C.6/153 and TD/B/C.6/154) have examined some of these aspects and their implications

for technology transfer and development. They also attempted to draw some policy conclusions which the Committee may wish to consider in determining the direction of future work on the transfer and development of technology.

53. It is in this changing international context that developing countries continue to deploy efforts to promote their technological development. Enhancing their capacity to deal with the rapid changes in technology, including technological advances brought about by new technologies has acquired increased importance in national and international policy discussions on the interrelationship between technology, trade and development.

54. As the rapid technological change offers opportunities and presents challenges to developing countries in their attempts to accelerate their technological transformation and expand their exports, increased attention is expected to be given to the strengthening of the institutional and human resource base of those countries to enable them to take advantage of the opportunities arising from new technologies. This could mean adopting measures to stimulate the transfer of technology to developing countries under equitable terms and conditions; strengthening their technological capacities through national actions and international co-operation; promoting local efforts by enterprises for the mastery, adaptation and improvement of imported technology and investment in the generation of technology and related services.

55. The accumulation of national capabilities at different stages of technological development is a long-term process that involves the participation of different actors, including enterprises such as equipment manufacturers and consulting and engineering design firms, universities, R & D institutes, financial institutions, etc. These actors operate generally within certain contexts and an international policy environment that affect their behaviour, including their programmes, policies, plans and strategies. The Committee may wish to examine further the role of these actors in and their contribution to the transfer and development of technology. What follows is a brief review of some of these technology-related issues which merit consideration by the Committee in deciding on its future work.

56. As mentioned above and discussed in earlier studies by the UNCTAD secretariat, the emergence and diffusion of new technologies has accelerated the pace of technological change which is affecting international trade, particularly the export performance and possibilities of developing countries. Consideration may be given to different options that would allow developing countries to benefit from these technological advances, including through the transfer of environmentally sound technologies for achieving the sustainable development of all parties. In so doing, the Committee may examine the growing role of entrepreneurial and technological services capabilities in the transfer, development and management of technology and explore possibilities to promote international co-operation in this field, including through co-operation among enterprises. In this respect, the Committee may be inspired by Board resolution 380 (XXXVI), particularly paragraph 4, in which the Trade and Development Board "affirms the need for pursuing policies in the areas of technology which further the goal of trade expansion for the benefit of all trading partners, particularly developing countries, and which promote investment, innovation, absorption and utilization of technology and development of technological and entrepreneurial capabilities".

57. The role of entrepreneurship could also be discussed in relation to the question of financing the transfer and development of technology, an issue of critical importance to many developing countries, particularly those in Africa and Latin America. As the secretariat report (TD/B/C.6/153) has shown, the stagnation or decline of technology flows in real terms from the developed market-economy countries to those two regions is largely attributed to a weaker capacity to import, resulting mainly from the debt crisis and falling commodity prices. On this issue, the Committee may explore ways and means of enhancing the role of regional and international financial institutions to support the transfer and development of technology in developing countries, including policies for the promotion of technological innovation.

58. The rapid technological change that has occurred over the last two decades, including the increased diffusion of new technologies has given rise to new practices in the transfer of technology and methods of its protection which are relevant to the ongoing international negotiations, such as those on an international code of conduct on the transfer of technology. At the same time, a new policy trend has emerged in many developing countries which aims at promoting further collaboration with foreign firms, including a more liberal policy with regard to foreign investment and transfer of technology. The Committee may find it pertinent to monitor this trend and further examine the impact of changes in technology and strategies and practices of technology suppliers on legislation and policies on the transfer of technology, while taking into account the outcome of the Uruguay Round of multilateral trade negotiations. A closely related area of work which is directly affected by the rapid technological change is industrial property whose economic, commercial and developmental aspects the Committee may wish to keep under review.

59. There is also a growing trend towards more co-operation in technology generation and transfer among enterprises, especially in developed market-economy countries. Joint R & D schemes, research and production consortia, and government-financed innovation programmes in specific sectors have recently increased in scope and importance. At the intergovernmental level, a large number of bilateral agreements on science and technology and on access to publicly financed R & D results have been concluded. The Committee may wish to explore further the opportunities offered by such collaboration schemes, in particular as regards the access of developing countries to government-sponsored or -financed R & D programmes.

60. As discussed in the secretariat document (TD/B/C.6/153), some developing countries have been more successful than others in attracting technology inflows and in absorbing, utilizing and mastering foreign technology. The sharing of experience and knowledge among those countries could be a first step towards promoting co-operation among themselves in the area of technology. This could be done at the governmental and enterprise level with a view to strengthening the technological capacity of these countries and increasing their participation in world trade. The Committee could identify areas and modalities that would help promote such a co-operation.

61. The work of the UNCTAD secretariat will aim at providing effective support to the work of the Committee on the basis of its own past decisions and resolutions, and of relevant resolutions and decisions adopted by the General Assembly, the Conference and the Trade and Development Board. It will

consist of research, policy analysis and technical co-operation activities in the field of technology and will be carried out within the framework of the approved Medium-term Plan for 1992-1997, taking into account the orientation that the Committee may provide concerning future work. In so doing, the UNCTAD secretariat will make increased use of available resources and relevant material generated within the United Nations system and expand its co-operation with other concerned United Nations organizations and agencies.

Notes

1/ See Paris Declaration and Programme of Action of the Second United Nations Conference on the Least Developed Countries (A/CONF.147/MISC.9 and Add.1).

2/ See, in particular, UNEP Governing Council Decision 15/2, annex II; and General Assembly resolution 42/187, paragraph 2.

3/ See "Sustainable development and UNCTAD activities" - report by the UNCTAD secretariat (TD/B/1267).

4/ See General Assembly resolution 44/228, paragraph 15 (m).

5/ TD/B/1246.

6/ UNCTAD/ITP/TEC/10.

7/ See "The diffusion of electronics technology in the capital goods sector: the Argentinian case" (UNCTAD/TT/66) and "The diffusion of electronics technology in the capital goods sector: the Yugoslavian case" (UNCTAD/TT/67).

8/ See UNCTAD/ITP/TEC/11.

9/ See "Negotiations on a draft international code of conduct on the transfer of technology: consultations carried out in 1989" - report by the Secretary-General of UNCTAD (TD/CODE TOT/54).

10/ "The relevance of recent developments in the area of technology on the draft international code of conduct on the transfer of technology" - study by the UNCTAD secretariat (TD/CODE TOT/55).

11/ See "The implementation of laws and regulations on the transfer of technology: the experience of the Republic of Korea" - study prepared by the UNCTAD secretariat in collaboration with Mr. Jinjoo Lee (UNCTAD/ITP/TEC/6).

12/ See "The implementation of laws and regulation on the transfer of technology - the experience of Brazil" - study prepared by Arthur Camara Cardozo at the request of the UNCTAD secretariat (UNCTAD/ITP/TEC/15).

13/ The other studies already published by the secretariat are the following: "The implementation of laws and regulations on transfer of technology: the experience of Nigeria" (UNCTAD/TT/74); "The implementation of laws and regulations on transfer of technology: the experience of Portugal" (UNCTAD/TT/73); "The implementation of transfer of technology regulations: A preliminary analysis of the experience of Latin America, India and the Philippines" (TD/B/C.6/55); and "Transfer of technology regulations in the Philippines" (UNCTAD/TT/32).

14/ UNCTAD/ITP/TEC/9.

15/ "Historical trends in protection of technology in developed countries and their relevance for developing countries" (UNCTAD/ITP/TEC/18); "Economic, commercial and developmental aspects of legal protection in respect of integrated circuits" (forthcoming); "Economic, commercial and developmental aspects of new methods of protection of biotechnology" (forthcoming).

16/ "The use of patents for the protection of technological innovation: A case-study of selected Swedish firms" - study prepared by Professor Ove Granstrand at the request of the UNCTAD secretariat (UNCTAD/ITP/TEC/13).

17/ "Industrial property protection and technological innovation - Case-study of Tanzania" - study prepared by S.M. Wangwe at the request of the UNCTAD secretariat (UNCTAD/ITP/TEC/17).

18/ See UNCTAD/ITP/TEC/4.

19/ See UNCTAD/ITP/TEC/12.

20/ Trade and Development Report, 1990 (United Nations publication, Sales No. E.90.II.D.6).

21/ Ibid.

22/ ECE, Economic survey of Europe in 1989-1990, United Nations publication, Sales No. E.90.II.E.1, New York 1990, pp. 84-85.

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REVIEW OF THE WORK PROGRAMME OF THE COMMITTEE, IMPLEMENTATION OF DECISIONS RELATING THERETO AND PROPOSALS FOR FURTHER WORK

Activities of the Advisory Service on Transfer of Technology

Report by the UNCTAD secretariat

Addendum

GE.90-52998/2646B

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Annex: Synoptic table - Activities of the Advisory Service on Transfer of Technology, Technology Programme, July 1988 - September 1990, including work in progress

Abbreviations

ACC	-	Administrative Committee on Co-ordination
ACP	-	African, Caribbean and Pacific (Group of States)
APCTT	-	Asian and Pacific Centre for Transfer of Technology
ARCT	-	African Regional Centre for Technology
ASTT	-	Advisory Service on Transfer of Technology (UNCTAD)
COMANSAT	-	Commonwealth Project on Strategic Management and Planning of Science and Technology
CONICIT	-	National Council for Scientific and Technological Research (Venezuela)
ECLAC	-	Economic Commission for Latin America and the Caribbean
FAO	-	Food and Agriculture Organization of the United Nations
ICAITI	-	Central American Institute for Research on Industrial Technology
IsDB	-	Islamic Development Bank
IDC	-	island developing countries
IPF	-	indicative planning figure
ISTP	-	Information System on Technologies and Projects
ITC	-	International Trade Centre
JUNAC	-	Board of the Cartagena Agreement
KIRDI	-	Kenya Industrial Research and Development Institute
LDCs	-	least developed countries
MFERT	-	Ministry of Foreign Economic Relations and Trade
MTNs	-	multilateral trade negotiations
NCST	-	National Council for Science and Technology (Kenya)
NCTT	-	National Committee on Transfer of Technology (Iraq)

PRODEC	-	Programme for Development Co-operation, Helsinki School of Economics
R & D	-	research and development
SADCC	-	Southern African Development Co-ordination Conference
SELA	-	Latin American Economic System
SIRIM	-	Standards and Industrial Research Institute of Malaysia
SMEs	-	small and medium-sized enterprises
TAC	-	Technical Assistance Committee
TIPS	-	Technological Information Pilot System
UNCSTD	-	United Nations Centre for Science and Technology for Development
UNDP	-	United Nations Development Programme
UNFSTD	-	United Nations Fund for Science and Technology for Development
UNIDO	-	United Nations Industrial Development Organization
UNPAAERD	-	United Nations Programme of Action for African Economic Recovery and Development
UNRPTC	-	United Nations Regular Programme of Technical Co-operation

INTRODUCTION

1. The present report is issued in response to the request in paragraph 13 of resolution 32 (VII) of the Committee on Transfer of Technology, whereby the Committee calls upon the Secretary-General of UNCTAD to prepare a report on the work of the Advisory Service on Transfer of Technology (ASTT), covering the ongoing technical assistance in the area of technology, to be presented to the Committee at its eighth session. The activities of the Advisory Service (ASTT) are described in chapter I and listed in a synoptic table. Chapter II provides a brief survey of the technical assistance aspects of transfer and development of technology.

Chapter I

THE TECHNICAL AND OPERATIONAL ASSISTANCE PROVIDED BY THE ADVISORY SERVICE ON TRANSFER OF TECHNOLOGY (ASTT)

2. This chapter describes the activities of ASTT, detailing outputs, beneficiaries or participants, as well as countries and regions involved, partners, counterparts and co-operating institutions, and the timing and source of financing. It should be read together with the synoptic table annexed to this report. The report, which covers activities completed during the period June 1988 to September 1990, and activities in progress, has been organized according to the priorities recommended by the Committee on Transfer of Technology at its seventh session.

3. At that session, the Committee recommended that the Advisory Service should continue its activities with a view to strengthening the technological capacities of developing countries, with special emphasis on the least developed countries, giving priority to activities in the field of human resource development, and to assisting and strengthening research and development institutions as a means of promoting technological innovation of a regional and interregional character. 1/ Priority attention has therefore been devoted to these aspects for the period covered by this report.

A. ACTIVITIES CONCERNING HUMAN RESOURCES DEVELOPMENT

4. During the reporting period, ASTT activities related to human resources development have been grouped around two approaches: one is based on workshops at the interregional, regional and national levels, and is described in this section; the other is based on training programmes as part of national advisory missions aimed at assisting developing countries in the formulation of comprehensive technical assistance projects, and is described in section B.

1. Interregional programmes

5. Two interregional projects were completed during the review period. One of them was organized in co-operation with, and financed by, the Islamic Development Bank (IsDB); the other was financed by the UNDP/USSR Trust Fund.

6. The Seminar on Technology Selection and Negotiation took place in Kuala Lumpur, Malaysia from 12 to 16 December 1988. It was organized by ASTT in co-operation with the Islamic Development Bank (IsDB), and with the Standards and Industrial Research Institute of Malaysia (SIRIM). The Seminar was attended by 25 representatives of 15 IsDB member countries, and by the Asian Pacific Centre for Transfer of Technology. The Kuala Lumpur Seminar was a sequel to an earlier one held at Jeddah, Saudi Arabia (10-17 November 1986), which had addressed the general issue of technology policies for development. 2/ In continuing the discussion, the Kuala Lumpur Seminar dealt more specifically with aspects related to technology acquisition, the selection and negotiation capabilities of the various countries, and their need for co-operation in these areas. Among other recommendations, the Seminar called for UNCTAD to: (i) undertake sectoral studies of critical importance to Islamic countries individually and/or collectively; (ii) strengthen its technical assistance to them in the field of technology transfer; and (iii) promote co-operation among Islamic countries and between them and other developing countries. Follow-up is being considered within the

framework of the co-operation agreement with IsDB. The proceedings of the Seminar are expected to be compiled and published at the end of 1990 or early in 1991.

7. A Workshop on Joint Ventures as a Channel for the Transfer of Technology was held in Moscow from 21 to 25 November 1988. It was organized by the Technology Programme in co-operation with the Ministry of External Economic Relations and the Chamber of Commerce and Industry of the USSR. The Workshop was financed by the UNDP/USSR Trust Fund. It was attended by 14 senior government officials from 12 developing countries, 11 senior executives from corporations in developed market-economy countries, high-level representatives of Poland, USSR and Yugoslavia, as well as observers from United Nations organizations. In addition, several commercial attachés based in Moscow attended. The Workshop's objectives were to promote a better understanding of the role of joint ventures as a channel for the transfer of technology, and to examine the practical aspects of their operation in developing countries, as well as in the countries of eastern Europe, in order to increase the efficiency of their operations. It was also intended to contribute, through an exchange of ideas and experiences, to a better understanding of the legal and institutional framework for joint ventures in the participating countries. The Workshop's formula of bringing together government officials and representatives of enterprises dealing with joint ventures and transfer of technology gave rise to a fruitful exchange of views. It provided a venue for detailed technical discussions on the problems encountered by both technology recipients and technology suppliers and possible ways of addressing them. A publication containing the participants' contributions was made available in October 1990. 3/

8. A document concerning an interregional project on the role of small and medium-sized enterprises (SMEs) in the transfer of technology was prepared during the reporting period. This project has a strong training component. Consultations have also been engaged with the Ministry of Science and Technology, Government of India, concerning the possibility of hosting one of the workshops foreseen in the project.

2. Regional programmes and projects

9. A regional seminar on Technology Transfer and Development for developing countries of Asia and the Pacific region took place in Beijing, People's Republic of China, from 31 October to 16 November 1988. It was organized by ASTT in co-operation with the Programme for Development Co-operation, Helsinki School of Economics (PRODEC), and financed by the Government of Finland. The co-operating partner in the host country was the China International Trade Research and Training Centre for Asia and the Pacific Region of the Ministry of Foreign Economic Relations and Trade (MFERT). The Seminar was aimed at enabling participants: to analyse recent technological advances and their possible implications for trade and development; to consider policy, planning, contracting and financing alternatives in the field of transfer and development of technology; and, through teamwork among participants and with the resource persons, to improve individual skills in evaluating, selecting and negotiating agreements or contracts involving the acquisition of technology. Resource persons included representatives of international and regional organizations and of selected companies with experience in the region. Participants had prepared written contributions on topics forming part of the work programme, which gave insight into critical aspects and

arrangements in the countries of the region, thus greatly stimulating in the exchange of ideas at the Seminar. The report of this event was made available in July 1989. 4/

10. A Seminar on "Technology Transfer and Development in a Changing International Environment: Policy Challenges and Options for Co-operation" for the developing countries of Asia, was held at Moscow from 5 to 9 February 1990. It was financed from a USSR contribution to Section 24 of the United Nations Regular Programme of Technical Co-operation (UNRPTC). The Seminar was the first activity in a new programme launched by ASTT, which consists of three regional seminars for developing countries of Asia, Africa and Latin America, to be followed by the provision of consultancy services. The co-operating partners for the Seminar in the host country were the Ministry of External Economic Relations of the USSR and the USSR Chamber of Commerce and Industry. The Seminar was attended by 25 high-level experts and executives from various institutions and organizations in Asian developing countries and in developed market-economy countries, eastern European countries and the USSR, along with observers from United Nations organizations. The Seminar was aimed at providing policy-makers, at governmental and enterprise levels, with an opportunity (i) to examine the experience of the Asian developing countries and their enterprises in promoting technology transfer and development; (ii) to exchange ideas and explore options on technology policy questions; and (iii) to identify new modalities for technological co-operation at regional and interregional levels in the changing international environment.

11. The Seminar agreed upon a set of practically oriented recommendations to co-operate in joint efforts to overcome obstacles to the transfer of technology and to stimulate the exploitation of new opportunities. The recommendations focused on the following areas: (i) the new international economic and technological environment, and the consequent necessity of promoting appropriate mechanisms for active South-South, South-East and East-West-South co-operation, with a view to achieving broader technological co-operation; this consideration should be borne in mind when drawing up the future work programme of UNCTAD; (ii) the different forms of technology transfer and their effectiveness, including their relative benefits for the developing countries over the short and the long term, and the scope for co-operation in this respect between developing Asian countries and eastern European countries, both questions calling for studies by developing countries with the assistance of UNCTAD; (iii) the impact of new technologies on the transfer of technology to developing countries, especially information technologies, robotics and biotechnology; in view of their significant development impact, it was felt that UNCTAD should take steps to help developing countries both to benefit from such advances and to adapt the new technologies to their specific needs; (iv) changes in the technological policies of the developed market-economy countries and their impact on the developing countries; (v) co-ordination of policies of developing countries in the development of technologies, which UNCTAD should help to bring about; (vi) the importance of indigenous reseach and development in connection with technology transfer; and (vii) the role of technology transfer in services, particularly, engineering and technical services. The papers presented and other details of the Seminar are expected to be published early in 1991.

12. A regional workshop of specialists on "Technology, Trade and Development Issues in Latin America in the 1990s" was held at Caracas, Venezuela, from 4 to 8 June 1990. The Workshop was planned and carried out in co-operation with PRODEC, and benefited from the co-operation of the Latin American Economic System (SELA) and the Board of the Cartagena Agreement (JUNAC). It was hosted by the Venezuelan National Council for Scientific and Technological Research (CONICIT) and financed by the Government of Finland. The Workshop was attended by 28 experts from 10 countries and by experts from the Economic Commission for Latin America and the Caribbean (ECLAC), SELA, JUNAC, the United Nations Industrial Development Organization (UNIDO) and the United Nations Centre for Science and Technology for Development.

13. As a new type of training experience and a means of promoting assistance to the Latin American region, the Workshop had as its objective to bring together a relatively small group of selected high-level experts from Latin America to exchange views and experiences and to reflect on the challenges and opportunities in the areas of technology, trade and development for the countries of the region in the 1990s. The programme covered a broad range of critical issues concerning technology, trade and development. This included selected aspects of the international economic and technological environment and the implications for Latin America of the economic and political changes taking place, particularly with regard to technology acquisition and the obstacles and opportunities offered by technology transfer and development at the regional and national levels, and in selected sectors of the economy. The programme was prepared with inputs from the two regional organizations directly co-sponsoring this event, i.e. SELA and JUNAC. Account was also taken of the replies to a substantive questionnaire sent to participants in the PRODEC/UNCTAD Lima Seminar on Technology and Development Perspectives in Latin America (November/December 1987). A special effort was made throughout the Workshop to define new approaches and modalities for technological co-operation, with a view to meeting the challenges faced by Latin America.

14. After the deliberations of the Workshop, a synthesis of the most important subjects discussed was made under three major headings. The first rubric related to the recent transformations in the world economy and their impact on Latin America. The second heading concerned a coherent response to the challenges of the 1990s. The third heading related to the need for a strategy for technological innovation 5/ and for a new style of co-operation. Great emphasis was placed on the need for undertaking common action based on an effective dialogue among diverse economic and technological actors, i.e. government, enterprises, research and development institutions, universities, etc. The consolidation of a "technological culture", including the development of human resources, of public and/or private technology support services, such as technological information, was stressed. Likewise attention was given to financial services and the strengthening of the relationship between universities/research institutions and the productive sector. Several specific modalities for technological co-operation were proposed, including practical details and suggestions for the setting up of a regional research and development (R & D) project (e.g. Eureka) and of technology-creating enterprises, including their necessary support, in particular, renewed links with universities and R & D institutions, and other new modalities encouraging technological innovation and development.

15. In the synthesis of the Workshop, the participants called for wide dissemination of the outcome of the Workshop and the papers presented, i.e. to other meetings of the same type and to events of a political nature in the region, such as the Ministerial Meeting on Industrialization, which SELA/ECLAC/UNIDO are organizing tentatively for the first quarter of 1991. They also expressed the wish that the results of the Workshop be transmitted to national, regional, subregional and international organizations in the field of technology. The proceedings will be made available in Spanish in November 1990. 6/

16. ASTT has convened a workshop on technology transfer and management for least developed and island developing countries of Asia and the Pacific. The Workshop was planned to take place in Manila, Philippines, from 2 to 15 December 1990, financed under the UNDP project RAS/86/168, 7/ and hosted by the Government of the Philippines. The Workshop was intended for approximately 20 government officials involved in the transfer, development and management of technology from various LDCs and IDCs of Asia and the Pacific. Experts and representatives from the enterprise sector were also invited to take part in this Workshop focusing on technological problems of island developing countries. It is envisaged that another inter-country Workshop would be organized during 1991 which would centre more specifically on problems faced by LDCs in the field of technology.

17. At the request of the Central American Institute for Research on Industrial Technology (ICAITI), ASTT prepared an outline of a joint UNCTAD/ICAITI seminar on technology and trade and development perspectives in Central America; possibilities for financing this seminar are currently being explored. Consultations are also proceeding concerning modalities for the implementation of the second and third regional seminars envisaged under the new training programme on "technology policy challenges and options for co-operation by developing countries in a changing economic environment", intended for developing countries in Africa and Latin America, respectively. In the context of the project on "technology in the food processing sector for the SADCC region", (see para. 30) PRODEC has indicated a preliminary interest in the preparation of a seminar to be held in 1992.

3. National programmes and projects

18. The ASTT's human resources development activities during the reporting period also involved the design and organization of, and/or substantive contributions to, events at the national level. These included contributions to seminars in Kenya and Somalia, reported on under section B below because of their direct link to other comprehensive technical assistance work being considered.

19. A training programme for government officials of Burundi was held in June/July 1990. Its purpose was to assist trainees in strengthening their ability to deal with policy issues concerning technology transfer and development, related investments, R & D, and institutional arrangements, with particular emphasis on sectors critical for the economy of Burundi. The programme was designed with, and included working sessions at, UNIDO, FAO and the ITC. A national workshop will be organized in Bujumbura during the last quarter of 1990 or early 1991 for senior government officials involved in the transfer and development of technology. Representatives from financial institutions and productive enterprises will also be invited to participate.

It is envisaged that the Workshop will examine and discuss the report on the food processing sector referred to in paragraph 22 below then make specific recommendations concerning actions to be taken in areas of transfer and development of technology in Burundi. 8/

20. ASTT contributed substantively to the Workshop on "Commercialization and Evaluation of Research and Development Results", which was held at Lagos, Nigeria, from 24 to 28 April 1989. It was jointly organized by the Federal Ministry of Science and Technology, the Commonwealth Science Council and the African Regional Centre for Technology (ARCT) and co-sponsored by the International Development Research Centre of Canada and the Nigerian Bank for Commerce and Industry. The recommendations contain a series of suggestions concerning issues of commercialization of R & D results, including policy formulation and the strengthening of related institutional arrangements. Following this Workshop, the ASTT attended the third meeting of the Commonwealth Project on Strategic Management and Planning of Science and Technology and its integration into national development (COMANSAT); the meeting took place at the Ministry of Science and Technology.

21. Concerning course materials and operational tools, and in addition to the reports on the training programmes referred to above, a compendium of issues concerning transfer and development of technology in developing countries was published. 9/ The Compendium addresses issues of technology policies in a generic manner, covering subjects such as technological change and the development process, international trade and technology and the strengthening of the domestic technological base, drawing upon the experiences of various countries.

B. ACTIVITIES CONCERNING TECHNOLOGY POLICIES, SECTORAL ASPECTS AND INSTITUTION-BUILDING IN THE FIELDS OF TECHNOLOGY AND TRADE, INCLUDING TECHNOLOGICAL INNOVATION

22. The main thrust of these activities is indicated below by region, complementing the details given in the synoptic table annexed to this report.

1. Activities in Africa

23. As may be recalled, 10/ the national project for Burundi (BDI/85/T01), financed by UNDP-UNFSTD, includes training activities and the preparation of reports on sectors critical to the national economy. In connection with the latter, a joint team has been established consisting of national and international experts and UNCTAD staff; a mission was fielded and an in-depth report was prepared on the "Agro-food sector and the framework for technology transfer to Burundi" ("Rapport sur le secteur agro-alimentaire et le cadre du transfert de la technologie au Burundi"). The report is to be examined at the national seminar to be held in the last quarter of 1990 or early in 1991. The seminar is aimed at creating awareness - among policy-makers and technology users - of the existing problems and opportunities related to transfer and development of technology in Burundi. 11/ A study on the metal-working sector is being planned with a methodology similar to the agro-food report for Burundi.

24. Following previous work in Kenya on the preparation of a national project on acquisition, utilization and development of technology, 10/ consultations and preparatory project-programming activities involving UNCTAD, UNDP and the Kenyan National Council for Science and Technology (NCST) were undertaken during this period. In this regard, a UNDP project-programming mission with UNCTAD participation was fielded in 1988. As a result of the report and recommendations of this mission, a national seminar on "Technological Issues in Industrial Enterprises in Kenya" was held at Kericho, from 5-9 February 1990. The Seminar was organized by the National Council of Science and Technology (NCST), in co-operation with the Ministry of Planning and National Development, the Ministry of Research, Science and Technology, the Ministry of Technical Training and Applied Technology, and the Kenya Industrial Research and Development Institute (KIRDI), and funded by a UNDP/ILO project budget. The Seminar recommended, inter alia, that a study be undertaken to assist in the formulation of effective national policies for technology transfer, and that the NCST be strengthened in order to deal effectively with questions of transfer of technology. Consultations are under way as to how best UNCTAD could assist in these endeavours.

25. A mission to the Gambia was undertaken to assess the country's technical assistance requirements in the field of transfer and development of technology. Accordingly, a project document was completed in co-operation with the Ministry of Economic Planning and Development, the Ministry of Finance and Trade and UNDP, and submitted to UNDP for financing. In view of the high commitment of IPF funds, the project has been included for consideration in terms of future assistance. Through a study of prevailing conditions in the Gambia regarding technology, the project aims at identifying the appropriate policy and institutional framework for technology acquisition, utilization and development. The project also envisages the organization of a national seminar at which the findings of the study would be discussed and appropriate recommendations for action would be made.

26. A mission was undertaken to Senegal, at the request of the Government, to define areas of co-operation for the transfer and development of technology, including enterprises and R & D centres. The mission also outlined a project proposal for the implementation of specific co-operation activities in the field of technology, which ASTT is now preparing.

27. The Government of Somalia felt that, given the absence of national policies and specific institutions for technology transfer, a national symposium on the country's development needs, including technology, would be a constructive way to initiate action to this end. Accordingly, ASTT made substantive contributions to, and participated in, the Symposium on "Somalia's Development Needs in the 1990s", held at Mogadishu, from 12 to 15 February 1990. The Symposium was organized by the Ministries of Planning and of Foreign Affairs and International Co-operation, in co-operation with, and funded by, UNDP. One of the recommendations adopted by the Symposium calls for UNCTAD's assistance for a study on Somalia's experience with technology acquisition and utilization, and the role of policies and institutional machinery in this regard. Subsequently, the Government requested ASTT assistance for this study; consultations are under way, including those with UNDP, in response to this request.

28. Following the fielding of a mission to Tunisia, in response to a request from the Government for assistance in monitoring technology transfer and acquisition in connection with the activities of the Committee on Technology Acquisition Contracts (Commission d'Agrément des Contrats d'Achat de Technologie), a report identifying requirements for handling technology transfer was submitted to the Government. A further request for technical assistance in institution-building and training was subsequently made to UNCTAD.

29. ASTT took part in the consultations held by the UNCTAD programming mission to Nigeria, particularly the consultations with the Federal Ministry of Science and Technology during which technical assistance requirements in this field were identified. The report of the mission contained recommendations to launch a short-term action programme covering activities proposed during the forthcoming two-year period that could be financed within existing interregional or regional technical assistance projects executed by UNCTAD, and to envisage a systematic medium-term technical assistance programme on trade policies and commodity diversificatio which could be considered as a contribution to the preparations for th P Fifth Programming Cycle. An UNCTAD preparatory assistance pr on strengthening the external sector is now under way.

30. As part of the ongoing work, and following previous ork in Rwanda, 12/ the Government has requested assistance from UNCTAD. In response consultations are under way on possible ways and means of formulating and implementing a national project. Similarly, modalities for responding to a request from Uganda are being examined in co-operation with the Government of Uganda and UNDP.

31. During the reporting period, renewed effort was made to design activities based on earlier technical assistance and/or research activities in a sequential fashion. For example, UNCTAD has been working on technology transfer and development in the food-processing sector. These issues are of critical importance for the SADCC countries. Thus, UNCTAD undertook the Arusha Seminar on "Technology Transfer and Development Perspectives of the Food Processing Sector", planned and carried out with PRODEC and SADCC secretariat support, and financed by the Government of Finland. 13/ UNCTAD was subsequently requested by the SADCC secretariat to assist the countries of the region in dealing with these questions; thus a project document was drawn up by ASTT, entitled "Transfer and development of technology in the food-processing sector of the SADCC countries: elements for a subregional policy framework and a human resource development programme". The project, which has been submitted for funding, also aims at fostering SADCC's trade and development potential in the sector. The project intends to draw upon the expertise of United Nations bodies such as UNIDO and ITC, and would be implemented with the SADCC secretariat as well as ministries and institutions associated with the sector in SADCC member States.

32. ASTT's efforts in helping to implement the objectives of the UNPAAERD are also relevant to the above-mentioned sector. Given the limited size of the food-processing industrial sector in many African countries, as well as the small size of the national markets and difficulties of export market access, technologies for the food-processing sector transferred from small and medium-sized enterprises (SMEs) in developed countries would seem to offer equipment and expertise appropriate to the scale needed. 14/ In order to

create greater awareness of this potential source of technology in the food-processing sector, ASTT is initiating the preparation of a regional project to be submitted for possible funding.

33. While, as mentioned above, a number of African LDCs have requested UNCTAD's assistance in the formulation and implementation of national projects, others would prefer to benefit from a regional project which could serve as a prelude to national projects, in the light of the experience to be gained from it. A project for African LDCs would also be of assistance in systematizing a response by ASTT. A regional project document is being prepared in this connection.

34. Following consultations with the African Regional Centre for Technology (ARCT), it has been agreed to assist in designing and implementing a joint project on facilitating access to technology information systems,including trade-related aspects, by African countries. The proposal centres on the organization of a symposium for national decision-makers, to be followed by consultancy services. Relevant United Nations agencies, regional technology institutions and specialized information systems, such as TIPS and the Information System on Technologies and Projects (ISTP) in Ljubljana (Yugoslavia) would be invited to participate in these activities.

35. ASTT also participated in an "Expert Consultation on Agricultural Mechanization in Africa", which took place in London from 23 to 25 April 1990, organized by the Commonwealth Secretariat, so as to prepare the ground for a workshop on the subject that was held in Nigeria (August 1990).

2. Activities in Asia and Western Asia

36. A regional project on transfer and utilization of technology in "least developed and island developing countries of Asia and the Pacific" (RAS/86/168) was approved by UNDP in the first quarter of 1989. 10/ This project aims at establishing the capacity to promote technology transfer through improved selection and acquisition of technology, in accordance with national development priorities. The focus of its activities is on policies for technology transfer and acquisition, diverse methods and channels and suitable institutional arrangements for the transfer of technology. Training through workshops and study tours is a major activity of the project. This project also benefits from the services of an associate expert made available by the Government of Finland. During the reporting period, two surveys of policies and arrangements concerning the importation of technology into the Maldives and Samoa were completed; arrangements were made to hold a regional workshop in December 1990. 15/ The two surveys give a detailed review of the present situation concerning human resources potential, structure of technology flows as well as policies and arrangements for the acquisition and utilization of technology in the respective countries. They also suggest ways to strengthen these elements.

37. Based on already completed field work, two further country studies are under way relating to Fiji and Myanmar: they are to be submitted to the respective government authorities. A mission to Bhutan was carried out during the fourth quarter of 1990, in order to undertake a similar survey.

38. Pending timing arrangements with the Government of Nepal it is hoped that a study can be completed on that country during the first quarter of 1991. The Government of Nepal had requested UNCTAD in 1986 to assist in designing a project proposal to strengthen its capacity in the transfer, acquisition and use of technology and to establish suitable linkages between government institutions and technology users. In 1989 it was agreed that, in view of the projects currently being implemented with the Nepalese Ministry of Industry, it would be helpful to consider a revised project dealing with transfer of technology and industrial manpower development, and a joint UNCTAD/UNIDO review mission to Kathmandu was proposed for this purpose.

39. An Indian case study has been completed on the utilization and commercialization of United Nations system-funded R & D results. The study examines the extent to which R & D results generated through United Nations system-funded projects have been used and commercialized. It also identifies possible methods of widening their diffusion so as to contribute to technological development in India.

40. Egypt and the Philippines have indicated an interest in the issues of utilization and commercialization of the results of publicly-funded R & D efforts; ASTT is examining ways of assisting these countries in making better use of the findings of their R & D institutions.

41. At the request of the Government of Iraq, a mission was fielded (in June 1989) to Baghdad to undertake consultations with the National Committee on Transfer of Technology (NCTT), with a view to identifying areas and issues of concern to the Committee and investigating the possibility of co-operation with UNCTAD. It was felt that a first step in such co-operation might be a joint seminar on technology transfer issues, to be held in Baghdad.

3. Activities in Latin America

42. A mission was fielded to Guatemala at the request of the Government. The objective was to help in the restructuring of the Technology Transfer Unit in the Ministry of Economic Affairs in the light of recently adopted legislation. Recommendations were made for the planned restructuring, as well as on some related institutional questions; a draft project was also examined for technology transfer and development at the Central American level. The Government has expressed interest in a second phase of technical assistance so as to assist in implementing the proposals. ASTT has submitted, through UNDP, a proposal for a workshop of two or three days to help in defining possible technology options. A mission was also sent to El Salvador at the request of the Government, and the preparation of a project proposal concerning selected aspects of technology acquisition and training for both government officials and entrepreneurs is being considered. ASTT is preparing a report on institutional arrangements for dealing with technology transfer and development in Mexico.

43. Following a request from representatives of the Latin American academic establishment, and in line with the results of the Workshop on Technology, Trade and Development in Latin America in the 1990s, a regional project on technology innovation issues is under preparation. Particular attention will be paid to strengthening the links between universities, R & D institutes and the productive sector for improving the use and commercialization of R & D results.

4. Interregional activities

44. Committee resolution 32 (VII), para. 10, requested the UNCTAD secretariat to prepare an in-depth assessment of the special technology problems of the least developed countries, as part of the preparations for the Second United Nations Conference on the Least Developed Countries (September 1990). ASTT has prepared this report and it was made available as a background document to the Conference. 16/ The report examines, among other concerns, the structural weaknesses of the LDCs which are obstructing technological change in these countries; it also takes up the question of the limited technology-supply capabilities of the LDCs and of technology flows to these countries. It includes an examination of case-studies based on material from a representative grouping of LDCs, covering issues related to technology acquisition, utilization, absorption and innovation. Major policy conclusions of this assessment were also contained in the Least Developed Countries Report, 1989.

45. Pursuant to Committee resolution 32 (VII), paragraph 9, requesting that UNCTAD's technical and operational assistance cover the strengthening of the developing countries' consultancy capabilities, ASTT had commented on the ITC draft project on the development of foreign trade in technical consultancy services in Asia and the Pacific region, and offered to co-operate on its implementation. ASTT has also been considering the formulation of a project at the interregional level to assist the developing countries in consultancy, design and engineering sectors.

46. Given the importance of technology co-operation among developing countries, as an alternative channel for acquiring and/or exchanging technological experience and information, or engaging in technology trade and services, ASTT has initiated contacts and consultations with various regional technology institutions as well as with regional and subregional economic integration groupings. To this end, the co-operative arrangements for transfer and development of technology will be examined, with a view to supporting and promoting such endeavours.

47. ASTT took part in the ACP/EEC Working Group on Technology, Training and Development, an organ of the ACP/EEC Joint Assembly, which met on 18-19 April 1989 in Brussels (Belgium). Reference was made at the meeting to a report on a draft programme of action for intra-ACP co-operation in technology, know-how and technical assistance, prepared in 1989 with the assistance of the UNCTAD secretariat, and which is to be submitted to the ACP Council of Ministers Meeting in 1990/1991.

5. Inter-agency activities

48. ASTT participated in inter-agency missions organized by the United Nations Centre for Science and Technology for Development (UNCSTD), to Thailand and Nepal in December 1988 and December 1989, respectively. The purpose of the missions was to assess the impact of United Nations activities under technical assistance projects, in particular, the core activities in the field of science and technology. The mission was a follow-up to the decision of the ACC Task Force on Science and Technology for Development, at its eighth session, to initiate country reviews on the impact of the United Nations system activities on the development of endogenous capacity in science and technology. 17/

49. As UNCTAD is a member of the Technical Assistance Committee (TAC) of the Asian and Pacific Centre for Transfer of Technology (APCTT), ASTT participated in its fourth meeting, hosted by the Government of Indonesia. ASTT also took part in the ESCAP/APCTT Consultative Expert Group Meeting on the Technology Atlas Project Outputs, held at Bangkok (Thailand) on 15-18 November 1988.

C. CONCLUDING REMARKS

50. In carrying out the above activities, the Advisory Service on Transfer of Technology has followed the orientations set by the Committee on Transfer of Technology in accordance with Board resolution 308 (XXX). The different activities undertaken during the reporting period have involved co-operation with a variety of national, regional and international institutions, at government, academic, R & D, financing and enterprise levels. These activities have also drawn upon the special expertise, information and facilities made available from co-operating partners in the United Nations, as in the case of the various contributions made in designing and implementing human resources development programmes. The annexed synoptic table gives details concerning these institutions' participation in the different activities undertaken by the Advisory Service.

51. During the reporting period, steps were taken to initiate new projects or project modalities and to renew working relationships with counterparts and/or funding partners. In this context, particular efforts were made to continue work on the basis of existing partnerships, i.e. co-operation with the Islamic Development Bank (IDB), with the Programme for Development Co-operation (PRODEC), and with regional institutions and centres, and also to explore new ones - i.e. the USSR contribution to Section 24 of the United Nations Regular Programme of Technical Co-operation. The approval by UNDP of the technical assistance project on least developed and island developing countries in Asia and the Pacific has been important in terms of responding to these countries' technical assistance needs.

52. Efforts were also made to take, wherever possible, a sequential and integrated approach to the design of new projects, applying the experience accumulated in UNCTAD itself through its research, policy-analysis and technical co-operation functions. Given the multi-disciplinary and intersectoral dimensions of technology, the need was foreseen further to enhance co-operation and co-ordination with other relevant international organizations and specialized institutions; ASTT is accordingly prepared to contribute in a similar fashion to other organizations' activities. An increased effort is being made to systematize ASTT's response to developing countries' requests and requirements for technical assistance, grouping conceptually some of the needs to be met through technical co-operation - e.g. proposed projects for African LDCs and work on technology and trade-related aspects in the consultancy, design and engineering sectors.

53. An examination of the work completed during the reporting period as well as that currently in progress, and the evaluations made by participants in specific activities, would seem to indicate that some of the concerns of the developing countries participating in ASTT activities have been addressed, although much more remains to be done. The results of its work and the experience gained will guide the secretariat in the design and implementation of future projects. With respect to the human resources development programmes, and in the light of the valuable exchange of experience and

information emerging from these programmes, the secretariat has initiated work ensuring follow-up to the substantive requirements identified. This has been done, for example, in the case of a project on the food-processing sector in the SADCC region. The follow-up of ongoing human resources development programmes, aimed at building on the constructive relationships existing at the regional level, may also involve exploring the idea of some form of co-operative networking with R & D institutions, regional organizations, government institutions and technology users. This would stimulate the flow and exchange of information and documentation which has already commenced. Holding regularly some training events and providing assistance in supplying information on available expertise could also be helpful for strengthening technological co-operation at the regional and interregional levels. In its overall work, it has been suggested that ASTT should devote more attention to designing projects that reflect the evolving concerns of the developing countries in respect of, for example, greater competitiveness, sustainable development and environment-related issues.

Chapter II

OUTLOOK

54. Stemming from the different activities of ASTT at the interregional, regional and national levels, and consequent contacts with Governments, certain indications have emerged with respect to trends in the evolution of the developing countries' requirements in the field of technology and trade. Developing countries are being affected by the major economic and political changes already occurring in the world or likely to occur. 18/ The results of the ongoing Uruguay Round of MTNs, the debt crisis, and the phenomenon and consequences of accelerated technological change itself are permeating the economies of the developing countries and affecting their societies. This will decisively influence their trade and development perspectives. Economic integration is now taking on a new dimension as a key ingredient for rapid technological change and development; hence economic and technological co-operation among developing countries is more important than ever. Developing countries have become more aware of the vital role of technology. In the current international economic environment, they have become profoundly concerned about access to technology and are seeking to resolve the issues connected with technology transfer, including its evaluation, selection and negotiation. Developing countries are attaching increasing importance to the exploration of possible technology policy options, and are trying to identify in a systematic way new modalities through which technology can be transferred internationally. These include new forms of foreign investment, joint ventures, and collaborative R & D, inter alia, taking a new look at international technology co-operation efforts.

55. While new technologies offer new opportunities to the developing countries, they also present challenges. The acquisition, selection, use and integration of such technologies give rise to new concerns; current working methods must be reorganized, for instance, and the different capabilities necessary in terms of human resources must be considered. Information technology has become a key element in this context. New opportunities are appearing in relation to the trade and technology aspects of services. There is a pervasive awareness that services' exploitation entails re-adapted formulation and implementation of the required supportive measures and policies.

56. The new situation facing developing countries has rendered urgent their need to maximize the domestic resources potential through technology innovation. In the light of recent trends towards liberalization, an enhancement of the interaction among the diverse economic agents has become imperative. This is particularly so for the Government, enterprises and R & D institutes involved in the adaptation and generation of technology and in the commercialization and use of R & D results. Some countries, for example, are stressing the role of government as the promoter of interactive initiatives: "setting the rules" for economic activities, while also emphasizing the important part to be played by enterprises. At the same time new partnerships between enterprises and R & D institutions/universities are being explored as a means of finding the common ground and joint potential for effectively increasing competitiveness and innovation. In promoting new technological dynamism in their economies, developing countries would appear to consider that the strengthening of their technological capacity increasingly means the ability to maximize the value added generated by the

domestic economy, as well as to foster technology adaptation and generation. As for the issues connected with technology acquisition, the development and strengthening of a coherent institutional, legislative and administrative framework and of the human resources base are considered as being crucial.

57. The difficulties confronting the least developed countries in undertaking the technological and structural changes required for their development have not decreased since the last meeting of the Committee on Transfer of Technology. The assessment of the special technology problems of the LDCs points to some areas for action; there is a need for a commitment to accept technological change and to shape the environment for technology acquisition, absorption and innovation; it likewise underlines the role of consistent policies and of a strong human resources base. 16/ The Programme of Action of the Second United Nations Conference on the Least Developed Countries called for increased technical assistance in the field of transfer and development of technology and for concerted, vigorous efforts by the international community to overcome the difficulties. In addition to implementation of the Programme of Action, it might be useful to consider undertaking a periodic qualitative asssessment of the progress achieved in surmounting the special technology problems facing the least developed countries.

58. The secretariat intends to continue assisting the developing countries in strengthening their technological and innovative capacities. In these endeavours emphasis will be placed on assistance to the least developed countries and on systematically exploring international co-operation possibilities in the field of technology, including co-operation among developing countries. In the light of the aforementioned indications emerging with respect to trends in the evolution of the developing countries' requirements in the field of technology and trade, and within the context of the broad goals outlined above, particular attention will be paid to human resources development, technological innovation and commercialization of R & D results. Likewise, the modalities for effective interaction of the economic agents involved, the technological dimension of trade in services, sustainable development, as well as institutional, legal and administrative aspects of technology transfer and development are also subjects which will be further explored.

59. Assistance to developing countries will, in general, be given through the provision of expertise and technical support for analysing technology transfer and development policy issues, including options at country or sectoral levels. It will also cover: the formulation of technology policies and measures and the corresponding institutional modalities; the design and implementation of human resource development programmes; and the formulation of technical co-operation projects in the above areas for submission to funding agencies. Renewed efforts will have to be made to seek financial support for the technical assistance projects addressing these issues. In this respect, the contribution by UNDP (which has identified technology as a main priority to be treated in the forthcoming Programming Cycle, 1992-1996) remains important as a means for meeting the requirements of developing countries which request UNCTAD's assistance. The secretariat will also continue to explore other available sources of finance, such as regional and interregional development banks and other institutions providing funding for international co-operation and development, as well as other innovative financing methods.

Notes

1/ See Committee resolution 32 (VII), para. 12.

2/ See "Technology policies for development and selected issues for action", Seminar proceedings, Jeddah, Saudi Arabia, 10-17 November 1986, organized by UNCTAD in co-operation with the Islamic Development Bank (based on working version made available in 1987). (UNCTAD/TT/94) 1988 (E/F).

3/ See, UNCTAD "Joint Ventures as a Channel for the Transfer of Technology", Proceedings of a Workshop organized by UNCTAD in collaboration with the Soviet Chamber of Commerce and Industry (Consultation Centre) and Ministry of External Economic Relations of the USSR, Moscow, USSR, 21-25 November 1988 (UNCTAD/ITP/TEC/9), 1990.

4/ See "Report of the Seminar on Technology Transfer and Development", organized by PRODEC in co-operation with UNCTAD and the China International Trade Research and Training Center for Asia and the Pacific Region, Beijing, People's Republic of China, 31 October - 16 November 1988 (E).

5/ In this context, specific reference was made to the definition and role of a technological innovation system in the transformation and modernization of the production system in a spirit of equity. See the recent report by the Economic Commission for Latin America and the Caribbean entitled "Changing Production Patterns with Social Equity" (LC/G.1601(SES.23/4)), March 1990.

6/ See UNCTAD, Tecnología, comercio y desarrollo en América Latina en los 90. Reflexiones de Caracas. Taller de especialistas en políticas tecnológicas. Organized by PRODEC and UNCTAD in co-operation with SELA, JUNAC and CONICIT, Caracas, Venezuela, 4-8 June 1990 (UNCTAD/ITP/TEC/14) 1990 (S).

7/ This project is described in para. 35.

8/ These activities are part of the national project mentioned in para. 27.

9/ See UNCTAD "Transfer and development of technology in developing countries: a compendium of policy issues", 1990 (UNCTAD/ITP/TEC/4).

10/ See UNCTAD, UNCTAD Work Programme on the Development and Transfer of Technology and Proposals for Further Work. "Activities of the Advisory Service on Transfer of Technology", addendum to a report by the UNCTAD secretariat (TD/B/C.6/147/Add.1) 1988.

11/ See also para. 18.

12/ See "Transfer and development of technology in Rwanda", report by an UNCTAD mission, 1982 (UNCTAD/TT/41) (AEFS).

13/ See "Report of the seminar on technology transfer and development perspectives of the food processing sector", organized by PRODEC in co-operation with UNCTAD and the Eastern and Southern African Management Institute (ESAMI), Arusha, 9-29 March 1988.

14/ See "Impact of technology transfer by foreign small and medium-sized enterprises on technological development in Kenya", October 1987 (UNCTAD/TT/85) (E).

15/ See also para. 15.

16/ See UNCTAD, "Transfer and development of technology in the least developed countries: an assessment of major policy issues", a report by the UNCTAD secretariat in co-operation with Lynn Krieger Mytelka, Carleton University, Ottawa, and LAREA/CEREM, Université de Paris-X, 1990 (UNCTAD/ITP/TEC/12).

17/ See "Report of the Inter-Agency Mission on Impact Study on the Activities of the United Nations System in Science and Technology in Thailand and in Nepal", prepared by the United Nations Centre for Science and Technology for Development.

18/ See UNCTAD, "Transfer and development of technology in a changing world environment: the challenges of the 1990s", (TD/B/C.6/153) 1990 and UNCTAD "Work Programme on the development and transfer of technology and proposals for further work" (TD/B/C.6/155) 1990.

Synoptic table
Activities of the Advisory Service, Technology Programme
July 1988-September 1990, including work in progress

Activities	Outputs	Country/region involved	Partners/Counterparts, or co-operating institutions (provision of resource persons or facilities)	Source of funding
A. Activities concerning human resource development				
1. Interregional programmes and projects				
1. Seminar on technology selection and negotiation, (Kuala Lumpur, Malaysia, 12-16 December 1988)	Interregional seminar (as follow-up to co-operation agreement with IDB); report	Countries members of the IsDB: Algeria; Cameroon; Egypt; Indonesia; Jordan; Malaysia; Morocco; Pakistan; Qatar; Saudi Arabia; Senegal; Sudan; Turkey; U.A. Emirates; Yemen	Islamic Development Bank (IDB), Standards and Industrial Research Institute of Malaysia (SIRIM), Asian Pacific Centre for Transfer of Technology	Extra-budgetary
2. Workshop on joint ventures as a channel for the transfer of technology (Moscow, USSR, 21-25 November 1988)	Interregional workshop; report	Africa: Egypt; Ghana; Nigeria; Zimbabwe; Asia: China, P. Rep. of; India, Republic of Korea; Malaysia; Philippines; Viet Nam; Latin America: Brazil; Cuba; Peru Eastern Europe: Poland; USSR; Yugoslavia	Chamber of Commerce and Industry (Consultation Centre), Ministry of External Economic Relations of the USSR	United Nations Development Programme (UNDP)/USSR Trust Fund
2. Regional programmes and projects				
3. Seminar on technology transfer and development (Beijing, People's Republic of China, 31 October - 16 November 1988)	Regional seminar; report	Asia: Afghanistan; China, P. Rep. of; Fiji; India; Indonesia; Iran (Islamic Rep. of); Korea; People's Dem. Rep. of; Lao P. Dem. Rep.; Malaysia; Mongolia; Nepal; Papua New Guinea; Philippines; Singapore; Sri Lanka; Thailand; Viet Nam	Programme for Development Cooperation, Helsinki School of Economics (PRODEC), China International Trade Research and Training Centre for Asia and the Pacific Region, Ministry of Foreign Economic Relations and Trade (MFERT)	Extra-budgetary

	Activities	Outputs	Country/region involved	Partners/counterparts, or co-operating institutions (provision of resource persons or facilities)	Source of funding
4.	Seminar on technology transfer and development in a changing international environment: policy challenges and options for co-operation (Moscow, USSR, 5-9 February 1990)	Regional seminar; report	Asia: Afghanistan; Bangladesh; Bhutan; Myanmar; China, P. Rep of; Iran, (Islamic Rep. of); Korea, P. Dem. Rep. of; India; Indonesia; Lao, P. Dem. Rep.; Malaysia; Nepal; Pakistan; Philippines; Rep. of Korea; Thailand; Eastern Europe: USSR	Chamber of Commerce and Industry, and Ministry for External Economic Relations of the USSR (MVES)	USSR contribution to Section 24, United Nations Regular Programme of Technical Co-operation
5.	Workshop on trade and development issues in Latin America in the 1990s (Caracas, Venezuela, 4-8 June 1990)	Regional workshop; report	Latin America: Argentina; Brazil; Bolivia; Chile; Ecuador; Guatemala; Mexico; Nicaragua; Peru; Venezuela	PRODEC, Sistema Económico Latinoamericano (SELA); Junta del Acuerdo de Cartagena (JUNAC), Consejo Nacional de Investigaciones Científicas (CONICIT, Venezuela), United Nations Industrial Development Organization, United Nations Centre for Science and Technology for Development	Extra-budgetary
6.	Proposed regional seminar on technology and trade and development perspectives in Central America	Outline of regional seminar	Central America	Central American Institute for Research on Industrial Technology (ICAITI)	Being explored
7.	Workshop for least developed and island developing countries of Asia and the Pacific on technology transfer and management (Manila, Philippines, 2-15 December 1990)	Regional workshop	Least developed and island developing countries of Asia and the Pacific: Afghanistan; Bangladesh; Bhutan; Fiji; Kiribati; Lao P. Dem. Rep.; Maldives; Myanmar; Nepal; Papua New Guinea; Samoa; Tonga; Tuvalu; Vanuatu	Technical Assistance Council of the Philippines	UNDP project (RAS/86/168)
	3. National programmes and projects				
8.	Seminar on technological issues in industrial enterprises in Kenya (Kericho, Kenya, 5-9 February 1990)	National seminar	Kenya	UNDP; National Council of Science and Technology (NCST), Ministry of Planning and National Development, and Ministry of Research, Science and Technology, Technical Training and Applied Technology; the Kenya Industrial Research and Development Institute (KIRDI)	UNDP/ILO project (KEN/89/003)

	Activities	Outputs	Country/region involved	Partners/counterparts, or co-operating institutions (provision of resource persons or facilities)	Source of funding
9.	Symposium on Somalia's development needs in the 1990s (Mogadishu, Somalia, 12-15 February 1990)	National seminar	Somalia	Ministry of Planning, Foreign Affairs and International Co-operation, and UNDP	UNDP
10.	Workshop on commercialization and evaluation of research and development results (Lagos, Nigeria, 24-28 April 1989)	Workshop	Nigeria	Federal Ministry of Science and Technology, the Commonwealth Science Council and the African Regional Centre for Technology, International Development Research Centre of Canada and the Nigerian Bank for Commerce and Industry, selected R&D institutions (Egypt, Ghana, Kenya, Senegal, Sierra Leone, Morocco, Niger, India, Malaysia, Sri Lanka, New Zealand)	Extrabudgetary
11.	Training programme on transfer and development of technology (Geneva, Vienna, and Rome 27 June-17 July 1990)	Training programme	Burundi	Ministry of Commerce and Industry, UNIDO, FAO and ITC	UNDP/UNFSTD project (BDI/85/T01)
12.	National workshop on transfer of technology (Bujumbura, Burundi, last quarter 1990/early 1991	National workshop	Burundi	Ministry of Commerce and Industry	UNDP/UNFSTD project (BDI/85/T01)
	4. Course material and operational tools				
13.	Proceedings of a Seminar organized by the Islamic Development Bank and UNCTAD on Technology Policies for Development and Selected Issues for Action (Jeddah, 10-17 November 1986)	Publication (UNCTAD/TT/94) 1988	Countries members of the IDB: Bahrain, Cameroon, Egypt, Iraq, Jordan, Malaysia, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Tunisia, Turkey, United Arab Emirates, Yemen, for distribution to all member governments	(i) Islamic Development Bank (IDB), (ii) Islamic Foundation for Science and Technology (IFSTAD), Gulf Organization for Industrial Consulting (GOIC), African Regional Centre for Technology (ARCT), Turkish National Council for Science and Technology, King Abdulaziz City for Science and Technology, Pakistan Atomic Energy Commission, other national institutions	Extrabudgetary
14.	Compendium of issues concerning transfer and development of technology in developing countries	Publication (UNCTAD/ITP/TEC/4)	For distribution to all member governments and relevant institutions in developing countries	Personnel/government units involved in technology and trade-related decision- and policy-making bodies, and technology users	Extrabudgetary

	Activities	Outputs	Country/region involved	Partners/counterparts, or co-operating institutions (provision of resource persons or facilities)	Source of funding
15.	Papers presented at the Workshop on joint ventures as a channel for the transfer of technology	Publication (UNCTAD/ITP/TEC/9)	"	"	United Nations Development Programme (UNDP)/USSR Trust Fund
16.	Papers presented at the Seminar on technology selection and negotiation	Publication (end of 1990/ early 1991)	"	"	Extrabudgetary
17.	Papers presented at the Seminar on technology transfer and development in a changing international environment: policy challenges and options for co-operation	Publication (early 1991)	"	"	Regular budget
18.	Papers presented and outcome of the regional workshop on technology, trade and development issues in Latin America in the 1990s	Publication (end 1990)	"	"	Extrabudgetary
	B. Activities concerning technology policies, sectoral aspects and institution-building in the fields of technology and trade, including technological innovation				
	1. Activities in Africa				
19.	Project programming mission (October 1988)	Formulation of technology project documents; report	Kenya	Government/UNDP	UNDP
20.	Country mission (June-July 1989)	Setting up of a joint working group and preparation of a report on the agro-food sector and the framework for technology transfer to Burundi	Burundi	Ministry of Commerce and Industry, national and international experts	UNDP/UNFSTD project (BDI/85/T01)
21.	Country mission (February 1989)	Assessment of the country's technical assistance requirements; project document	The Gambia	Ministry of Economic Planning and Development, Ministry of Finance and Trade and UNDP	Regular budget, project submitted to UNDP
22.	Country mission (September 1990) Project formulation in progress	Definition of areas of co-operation in transfer and development of technology and main lines of a project proposal	Senegal	Ministry of Industry and Crafts	Regular budget

	Activities	Outputs	Country/region involved	Partners/counterparts, or co-operating institutions (provision of resource persons or facilities)	Source of funding
23.	Country mission report (November 1988) Follow-up under consideration	Report submitted to Government on monitoring of technology transfer; consultations concerning further technical assistance	Tunisia	Committee on Technology Acquisition Contracts, Agence de Promotion de l'Industrie	Regular budget
24.	Programming mission (April 1989)	Identification of technical assistance requirements; report	Nigeria	Federal Ministry of Science and Technology UNDP	Regular budget
25.	Formulation of a project proposal on transfer and development of technology in the food processing sector	Project document	SADCC countries	SADCC secretariat, Post-production Food Industry Advisory Unit (PFIAU), the Industry Co-ordinating Division	Submitted for funding
26.	National project formulation under way	Consultations/ proposals regarding modalities in progress; proposals under consideration	Rwanda	Ministry of Industry and Crafts	Being explored
27.	Regional project formulation under way	Building of capabilities for technology selection, negotiation and acquisition, including training and studies	African least developed countries	Government units involved in technology and trade-related decision- and policy-making and technology users	"
28.	Regional project formulation under way	Food processing technologies from SMEs	African region	Government units involved in technology and trade-related decision- and policy-making and technology users	"
29.	Country mission in preparation	Setting up of a joint working group; report on the metal-working sector	Burundi	Ministry of Commerce and Industry National and international experts	UNDP/UNFSTD project (BDI/85/T01)
30.	Regional project formulation under way	Project document proposal on access to technology information systems, including trade-related aspects	African region	African Regional Centre for Technology (ARCT)	Being prepared
	2. Activities in Asia and Western Asia				
31.	Survey of policies and arrangements concerning imports of technology	Report on policies and arrangements concerning imports of technology	Maldives	Ministry of Planning and Environment	UNDP (RAS/86/168)
32.	" " "	" " "	Samoa	Department of Economic Development	UNDP (RAS/86/168)

	Activities	Outputs	Country/region involved	Partners/counterparts, or co-operating institutions (provision of resource persons or facilities)	Source of funding
33.	Survey of policies and arrangements concerning imports of technology	Report on policies and arrangements concerning imports of technology (being finalized)	Fiji	Ministry of Trade	UNDP (RAS/86/168)
34.	"	"	Myanmar	Directorate of Trade	UNDP (RAS/86)168)
35.	Country mission (planned)	"	Bhutan	Trade and planning authorities	UNDP (RAS/86/168)
36.	Country study (planned)	"	Nepal	Ministry of Industry	UNDP (RAS/86/168)
37.	Country project formulation mission (in preparation)	Review of project proposal for strengthening capacity in technology transfer, acquisition and use	Nepal	Ministry of Industry; UNIDO	UNDP
38.	Utilization and commercialization of UN system-funded R and D results	Report on the case study of India	India	National R and D institutions and UNDP	Regular budget
39.	Country mission (June 1989)	Consultations to identify areas and issues of concern to NCTT, and possibilities of co-operation	Iraq	Scientific Research Council, National Committee on Transfer of Technology (NCTT)	Regular budget
	3. Activities in Latin America				
40.	Country mission (August 1990)	Report on the restructuring of the Technology Transfer Unit of the Ministry of Economic Affairs, proposal for organizing a Workshop submitted to Government	Guatemala	Ministry of Economic Affairs	Regular budget
41.	Country mission (May 1990)	Preparation of project proposal on technology acquisition and training	El Salvador	Ministry of Economic Affairs, Division for Capital and Technology Transfer	Regular budget
42.	Planned seminar on technology and trade and development perspectives in Central America	Outline; consultations on modalities	Central America	Central American Institute for Research on Industrial Technology (ICAITI)	Being explored

	Activities	Outputs	Country/region involved	Partners/counterparts, or co-operating institutions (provision of resource persons or facilities)	Source of funding
	4. Interregional activities				
43.	In-depth assessment of the special technology problems of the least developed countries	Publication (UNCTAD/ITP/TEC/12), contribution to the Least Developed Countries Report, 1989	Interregional	Experts from developing and developed countries	Regular budget
44.	Interregional project formulation	Project proposal on the strengthening of consultancy, design and engineering sectors in developing countries	Africa, Asia and Latin America	Government units involved in technology and trade-related matters; relevant enterprises (to be explored)	Regular budget
45.	Initiation of review of technology co-operation among developing countries	Technical report including identification of potential areas for co-operation and possible recommendations	Africa, Asia and Latin America	Regional and subregional economic groupings and technology institutions and centres in Africa, Asia and Latin America	Regular budget
	5. Inter-agency activities				
46.	Country missions to assess impact of United Nations activities under technical assistance projects in the field of science and technology	Participation in UN Inter-Agency missions; report by the UNCSTD to ACC	Thailand (December 1988) Nepal (December 1989)	UNCSTD; national technology related institutions; relevant UN organizations; UNDP	Regular budget